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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/826,752	04/16/2004	Romeo Emmanuel P. Alvarez	APS01-002B	1220
7590	08/01/2006		EXAMINER	
George O. Saile 28 Davis Avenue Poughkeepsie, NY 12603			MITCHELL, JAMES M	
			ART UNIT	PAPER NUMBER
			2813	

DATE MAILED: 08/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/826,752

Applicant(s)

ALVAREZ, ROMEO EMMANUEL
P.

Examiner

James M. Mitchell

Art Unit

2813

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 10/315,534.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to applicant's amendment filed May 25, 2006.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 21-24 and 26-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Sakurai et al. (U.S. 2001/0040290).
4. Sakurai (Fig. 1, 2, 12) discloses:
(cl. 21) a wafer level chip scale package comprising; a semiconductor die (10) having a plurality of pads (12) on a surface; conductors (90) coupled to and extending vertically (e.g. in vertical direction) a first predetermined distance from the surface of the semiconductor die; an etch resistant layer (92) on free ends of the vertical conductors; a layer of insulation (14) on the surface, the layer of insulation having an exposed surface (e.g. exposing surface of pad; Fig. 2b) a second predetermined distance from the surface of the semiconductor die, wherein the second predetermined distance is less than the first predetermined distance and wherein said layer of insulation partially covers lower portions of side surfaces (e.g. lower vertical portion of conductor covered) of substantially all of the conductors; and reflowable material (44) attached to the etch

Art Unit: 2813

resistant layer and to at least portions of side surfaces of substantially all of the conductors (Fig. 12b);

(cl. 22) wherein the conductors comprise copper conductors (Par. 0103);

(cl. 24) wherein the etch resistant layer comprises a layer of gold (0145; Par. 160);

(cl. 26) wherein the thickness of the layer of gold is less than the difference between the first predetermined distance and the second predetermined distance (Fig 12b);

(cl. 27) wherein the layer of insulation comprises a material polyimide (Par. 0097);

(cl. 28) the reflowable material comprises solder (0144);

(c. 29) wherein the solder comprises eutectic solder (Par. 0147).

5. With respect to the process limitation of claim 23 that copper is "plated," the prior art structure is the same as the claimed invention. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sakurai (U.S. 2001/0040290) in combination with Jin (U.S. 2003/0219966).
8. Sakurai discloses the elements stated in paragraphs 6 and 7 of this office action, but does not disclose use of a combination of nickel and gold layers under its reflowable material.
9. Jin (Fig .12) utilizes of a combination of nickel and gold layers (30,32) under its reflowable material (36).
10. It would have been obvious to one of ordinary skill in the art to incorporate nickel with the gold¹ of Sakurai in order to improve pitch as taught by Jin (Par. 0009-0014).

Response to Arguments

11. Excluding examiner's prior rejection based on Jin (U.S. 2003/0219966), Applicant's arguments filed May 25, 2006 have been fully considered but they are not persuasive.

¹ Furthermore, the incorporation of the claimed material would have been obvious, since it has been held that the selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945) (Claims to a printing ink comprising a solvent having the vapor pressure characteristics of butyl carbitol so that the ink would not dry at room temperature but would dry quickly upon heating were held invalid over a reference teaching a printing ink made with a different solvent that was nonvolatile at room temperature but highly volatile when heated in view of an article which taught the desired boiling point and vapor pressure characteristics of a solvent for printing inks and a catalog teaching the boiling point and vapor pressure characteristics of butyl carbitol. "Reading a list and selecting a known compound to meet known requirements is no more ingenious than selecting the last piece to put in the last opening in a jig-saw puzzle." 325 U.S. at 335, 65 USPQ at 301.). See also *In re Leshin*, 227 F.2d 197, 125 USPQ 416 (CCPA 1960) (selection of a known plastic to make a container of a type made of plastics prior to the invention was held to be obvious); *Ryco, Inc. v. Ag-Bag Corp.*, 857 F.2d 1418, 8 USPQ2d 1323 (Fed. Cir. 1988) (Claimed agricultural bagging machine, which differed from a prior art machine only in that the brake means were hydraulically operated rather than mechanically operated, was held to be obvious over the prior art machine in view of references which disclosed hydraulic brakes for performing the same function, albeit in a different environment.).

Art Unit: 2813

12. Applicant contends the his invention is novel over Sakura, because Sakura discloses “mushroom-shaped pillars” that allegedly are not “the vertical **pillars** of applicant’s invention.” [Emphasis added]. This argument is not persuasive, because there is no affirmative recitation of that limitation in the claim; applicant’s arguments do not define the scope of his invention. The claim only requires “vertical conductors,” which are encompassed in a mushroom shape conductor that extends vertically.

13. Moreover, even assuming that applicant did affirmatively claim a “vertical pillar,” this still would not overcome the prior art, because being mushroom shape and vertical pillar are not mutually exclusive. The mushroom shape includes vertical column portions and therefore vertical pillars.

14. In addition even assuming there was a difference between a vertical pillar and a mushroom-shaped conductor, Sakura’s vertical conductors are not restricted to being mushroom shape (see Par. 0167 of Sakura). Applicant even admits on page 6 of his remarks filed May 25, 2006 that there are embodiments that show “vertical pillars” as contemplated by him. Because Sakura’s conductors are not limited to being mushroom shape and even shows the type of pillars contemplated by applicant, it encompasses vertical pillars as argued. For the reasons stated *supra*, applicant’s arguments are found unpersuasive and the rejection deemed proper.

Conclusion

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

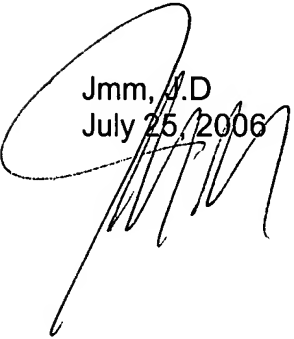
Any inquiry concerning this communication or earlier communications from the examiner should be directed to James M. Mitchell whose telephone number is (571) 272-1931. The examiner can normally be reached on M-F 8:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2813

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jmm, J.D.
July 25, 2006




CARL WHITEHEAD, JR.
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800